IN THE CLAIMS:

This listing of claims will replace all prior versions and listings of the claims in the application:

1. (Currently Amended) A raking receiver in a wireless network, comprising:

an antenna for receiving an incoming signal;

first through Nth main path wavelet forming networks for producing first through Nth locally generated main wavelets, respectively;

first through Nth main path weighting mixers for multiplying the first through Nth locally generated main wavelets by first through Nth main weighting values, respectively, to produce first through Nth main weighted wavelets;

a main path summer for adding together the first through Nth main weighted wavelets to produce a weighted main correlation input signal;

a main path mixer for multiplying the incoming signal with the weighted main correlation input signal to produce a main correlated signal; and

a main path signal processing circuit for receiving the main correlated signal ~~correlating circuit~~ and producing a digital bit value,

wherein N is an integer greater than 1.

2. (Original) A raking receiver in a wireless network, as recited in claim 1, wherein the main path signal processing circuit further comprises: a main path filtering circuit for filtering the main correlated signal to produce a main filtered signal.

3. (Original) A raking receiver in a wireless network, as recited in claim 2, wherein the main path signal processing circuit further comprises: a main path analog-to-digital converter for converting the main filtered signal to a digital bit value.

4. (Original) A raking receiver in a wireless network, as recited in claim 2, wherein the main path signal processing circuit further comprises: a main path amplifier chain for amplifying the main correlated signal before it is provided to the main path filtering circuit.

5. (Original) A raking receiver in a wireless network, as recited in claim 1, wherein the main path signal processing circuit further comprises: a main path integrating circuit for integrating the main correlated signal to produce a main integrated signal.

6. (Original) A raking receiver in a wireless network, as recited in claim 5, wherein the main path signal processing circuit further comprises: a main path analog-to-digital converter for converting the main integrated signal to a digital bit value.

7. (Original) A raking receiver in a wireless network, as recited in claim 5, wherein the main path signal processing circuit further comprises: a main path amplifier chain for amplifying the main correlated signal before it is provided to the main path integrating circuit.

8. (Currently Amended) A raking receiver in a wireless network, as recited in claim 5, wherein the main path ~~integrator~~ integrating circuit further comprises:

a first integrator;

a second integrator;

a third integrator;

an input switch that can select one of the first, second, and third integrators to connect to the main path mixer; and

an output switch that can select one of the first, second, and third integrators to connect to ~~the~~ a main path analog-to-digital converter,

wherein for every integration period, the input switch selects one of the first, second, and third integrators as an integrating integrator to integrate the main correlated signal, the output switch selects one of the first, second, and third integrators as a holding integrator to output the main integrated signal, and one of the first, second, and third integrators operates as a dumping integrator to dump any information it had previously stored, and

wherein for every integration period, the integrating, holding and dumping integrators are each different ones of the first, second, and third integrators.

9. (Currently Amended) A raking receiver in a wireless network, as recited in claim 1, wherein phases of each of the first through N^th^ locally generated main wavelets can be independently varied by the first through N^th^ main path wavelet forming networks, respectively.

10. (Currently Amended) A raking receiver in a wireless network, as recited in claim 1, further comprising:

first through M^th^ error path wavelet forming networks for producing first through M^th^ locally generated error wavelets, respectively;

first through Mth error path weighting mixers for multiplying the first through Mth locally generated error wavelets by first through Mth error weighting values, respectively, to produce first through Mth error weighted wavelets;

an error path summer for adding together the first through Mth error weighted wavelets to produce a weighted error correlation input signal;

an error path mixer for multiplying the incoming signal with the weighted error correlation input signal to produce an error correlated signal; and

an error path signal processing circuit for receiving the error correlated signal ~~correlating circuit~~ and producing a digital error-tracking signal,

wherein M is an integer greater than 1.

11. (Original) A raking receiver in a wireless network, as recited in claim 10, wherein the error path signal processing circuit further comprises: an error path filtering circuit for filtering the error correlated signal to produce an error filtered signal.

12. (Original) A raking receiver in a wireless network, as recited in claim 11, wherein the error path signal processing circuit further comprises: an error path analog-to-digital converter for converting the error filtered signal to a digital bit value.

13. (Original) A raking receiver in a wireless network, as recited in claim 11, wherein the error path signal processing circuit further comprises: an error path amplifier chain for amplifying the error correlated signal before it is provided to the error path filtering circuit.

14. (Original) A raking receiver in a wireless network, as recited in claim 10, wherein the error path signal processing circuit further comprises: an error path integrating circuit for integrating the error correlated signal to produce an error integrated signal.

15. (Currently Amended) A raking receiver in a wireless network, as recited in claim 14, wherein the error path signal processing circuit further comprises: an error path analog-to-digital converter for converting the error integrated signal to ~~a~~ the digital ~~bit value~~ error-tracking signal.

16. (Original) A raking receiver in a wireless network, as recited in claim 14, wherein the error path signal processing circuit further comprises: an error path amplifier chain for amplifying the error correlated signal before it is provided to the error path integrating circuit.

17. (Currently Amended) A raking receiver in a wireless network, as recited in claim 15, wherein the error path ~~integrator~~ integrating circuit further comprises:

a first integrator;

a second integrator;

a third integrator;

an input switch that can select one of the first, second, and third integrators to connect to the error path amplifier chain; and

an output switch that can select one of the first, second, and third integrators to connect to the error path analog-to-digital converter,

wherein for every integration period, the input switch selects one of the first, second, and third integrators as a sample integrator to sample the error amplified signal, the output switch selects one of the first, second, and third integrators as a hold integrator to output the error integrated signal, and one of the first, second, and third integrators operates as a dump integrator to dump any information it had previously stored, and

wherein for every integration period, the sample, hold and dump integrators are each different ones of the first, second, and third integrators.

18. (Original) A raking receiver in a wireless network, as recited in claim 10, wherein phases of each of the first through Mth error wavelets can be independently varied by the first through Mth error path wavelet forming networks, respectively.

19. (Original) A raking receiver in a wireless network, as recited in claim 10, wherein M is equal to N.

20. (Currently Amended) A raking receiver in a wireless network, comprising:

an antenna for receiving an incoming signal;

~~A~~ a wavelet forming circuit for producing first through Nth weighted main wavelets and first through Nth weighted error wavelets;

~~A~~ a main path summer for adding together the first through Nth weighted main wavelets to produce a main correlation input signal;

an error path summer for adding together the first through Nth weighted error wavelets to produce an error correlation input signal;

a main path mixer for multiplying the incoming signal with the main correlation input signal to produce a main correlated signal;

an error path mixer for multiplying the incoming signal with the error correlation input signal to produce an error correlated signal;

a main path signal processing circuit for receiving the main correlated signal and producing a digital bit value; and

an error path signal processing circuit for receiving the error correlated signal ~~correlating circuit~~ and producing a digital error-tracking signal,

wherein N is an integer greater than 1.

21. (Original) A raking receiver in a wireless network, as recited in claim 20, wherein the main path signal processing circuit further comprises:

a main path amplifier chain for amplifying the main correlated signal to produce a main amplified signal;

a main path integrator circuit for integrating the main amplified signal to produce a main integrated signal; and

a main path analog-to-digital converter for converting the main integrated signal to the digital bit value.

22. (Original) A raking receiver in a wireless network, as recited in claim 21, wherein the main path integrator circuit further comprises:

a first integrator;

a second integrator;

a third integrator;

an input switch that can select one of the first, second, and third integrators to connect to the main path amplifier chain; and

an output switch that can select one of the first, second, and third integrators to connect to the main path analog-to-digital converter,

wherein for every integration period, the input switch selects one of the first, second, and third integrators as a sample integrator to sample the main amplified signal, the output switch selects one of the first, second, and third integrators as a hold integrator to output the main integrated signal, and one of the first, second, and third integrators operates as a dump integrator to dump any information it had previously stored, and

wherein for every integration period, the sample, hold and dump integrators are each different ones of the first, second, and third integrators.

23. (Original) A raking receiver in a wireless network, as recited in claim 20, wherein the error path signal processing circuit further comprises:

an error path amplifier chain for amplifying the error correlated signal to produce an error amplified signal;

an error path integrator circuit for integrating the error amplified signal to produce an error integrated signal; and

an error path analog-to-digital converter for converting the error integrated signal to the digital error-tracking signal.

24. (Original) A raking receiver in a wireless network, as recited in claim 23, wherein the error path integrator circuit further comprises:

a first integrator;

a second integrator;

a third integrator;

an input switch that can select one of the first, second, and third integrators to connect to the error path amplifier chain; and

an output switch that can select one of the first, second, and third integrators to connect to the error path analog-to-digital converter,

wherein for every integration period, the input switch selects one of the first, second, and third integrators as a sample integrator to sample the error amplified signal, the output switch selects one of the first, second, and third integrators as a hold integrator to output the error integrated signal, and one of the first, second, and third integrators operates as a dump integrator to dump any information it had previously stored, and

wherein for every integration period, the sample, hold and dump integrators are each different ones of the first, second, and third integrators.

25. (Currently Amended) A raking receiver in a wireless network, as recited in claim 20, wherein phases of each of the first through ~~Mth~~ Nth weighted error wavelets can be independently varied by the ~~first through Mth error path~~ wavelet forming ~~networks, respectively~~ circuit.

26. (Currently Amended) A method of raking in a wireless network, comprising:

receiving a wireless signal;

generating first through N^{th} locally generated main wavelets;

multiplying the first through N^{th} locally generated main wavelets by first through N^{th} main weighting values, respectively, to produce first through N^{th} main weighted wavelets, respectively;

adding together the first through N^{th} main weighted wavelets to produce a main correlation input signal; and

correlating the main correlation input signal with the received signal to produce a bit value,

wherein N is an integer greater than 1.

27. (Original) A method of raking in a wireless network, as recited in claim 26, further comprising:

generating first through M^{th} locally generated error wavelets;

multiplying the first through M^{th} locally generated error wavelets by first through M^{th} error weighting values, respectively, to produce first through M^{th} error weighted wavelets;

adding together the first through M^{th} error weighted wavelets to produce a error correlation input signal; and

correlating the error correlation input signal with the received signal to produce an error-tracking signal,

wherein M is an integer greater than 1.

28. (Original) A method of raking in a wireless network, as recited in claim 27, wherein M is equal to N.